
Phenology Monitoring

a step-by-step how to

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Overview

To engage in the process of phenology is to engage with the cyclical, seasonal phenomena occurring in the world all around you. This process includes observing and documenting plant, animal, and any other seasonal change with consistency over a duration of time. In example, monitoring sites over time explores:

- Plant changes throughout the seasons like fruiting, budding, and dying
- Landscape changes throughout seasons like newly fallen trees or seasonal streams
- Weather changes throughout the year like snow or heavy drought
- The presence or absence of animals near a phenology site
- How you or your behavior changes throughout the seasons

To establish and monitor your own phenology plot, the following steps are by no means exhaustive, but will assist in your endeavors.

Procedures

In preparation, collect all required materials to conduct phenology observations., including a safe place to document your observations.

STEP ONE: Identify which plant species you're interested in observing, and remember them.

What plants capture your interest? Are there certain plants absent in winter but suddenly arrive in spring? Flowers you'd like to more intentionally watch as they grow?

- Choose plants that are easily accessible to you and convenient to observe.
- Mark these plants on a map, with tags, in an illustration, with a GPS coordinate, in your memory... whatever resource best fits your practice.

STEP TWO: Determine what frequency you intend to visit your phenology plot, and make a commitment to that investment.

Are you curious to see something shift weekly? Once per season? What time frame you can commit to that will keep you both engaged and encouraged?

- Familiarizing yourself with phenology can take a little time getting used to and certainly benefits from a committed investment.

Materials

You may choose not to use all the materials during every photopoint, but at least for the first time you go out you'll need:

- Camera
 - Tripod or other camera stabilizer
 - Compass
 - Notepad and pen, or other data collection device
 - Additional monitoring equipment; including, thermometer, helpful data sheets like the Beaufort scale (for wind), cloud type sheet, plant information sheets and/or field guides
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- And, making observations can be as quick or extended as you prefer. Every observation is a valuable observation! The more time you spend with each point of interest, the greater you'll be able to recognize its seasonal shifts.

STEP THREE: Collect data in your newly determined phenology plot, indicating the date and time of your collections.

At the North Cascades Environmental Learning Center, collecting phenological change over time utilizes:

- A zoomed in (micro) photo of each point of interest (1 photo total per plant)
- A full-frame (macro) photo of each point of interest (1 photo total per plant)
- A series of cardinal and ordinal directions surrounding a group of points of interest (8 total photos per plant group - N, NE, E, SE, S, SW, W, NW)
- A written collection of date, time, temperature, weather conditions, and any additional notable species observations

Photographic Data:

Directional Photos:

- To take 8 photos in the 8 cardinal and ordinal directions, choose one location centrally located to your chosen plant species. Mark your "plot center" in a manner similar to how you've identified your individual plant species. At each observation session, return to this location to capture these 8 photographs.
- For directional photos use a tripod (or other stabilizer), set consistently at the same height, ex. with legs fully extended, and place photographic device on the tripod.
- Zoom your camera lens all the way out to capture the greatest space.
- With a compass parallel to your photographic device, move both camera and compass until you arrive at each cardinal and ordinal direction. Take one photo per direction.
- Practice consistency by taking photos set to North first, then moving to NE next, and so on.

Informational Data:

- Document the date and time of your observations.
- If you would like to engage with other contextual data, entertain using a thermometer, the Beaufort wind scale and cloud type sheets to make observations of weather.
- Not familiar with what plants, birds, or animals you're noticing? Explore a field guide like *Plants of the Pacific Northwest coast: Washington, Oregon, British Columbia & Alaska* by Jim Pojar and Andy MacKinnon. This, and other excellent options, are available at our online shop at ncascades.org

STEP FOUR: Entertain adding your observations to other community science initiatives, like iNaturalist, NaturesNotebook, or EpiCollect5.